

A political ecology of Bangkok waters:

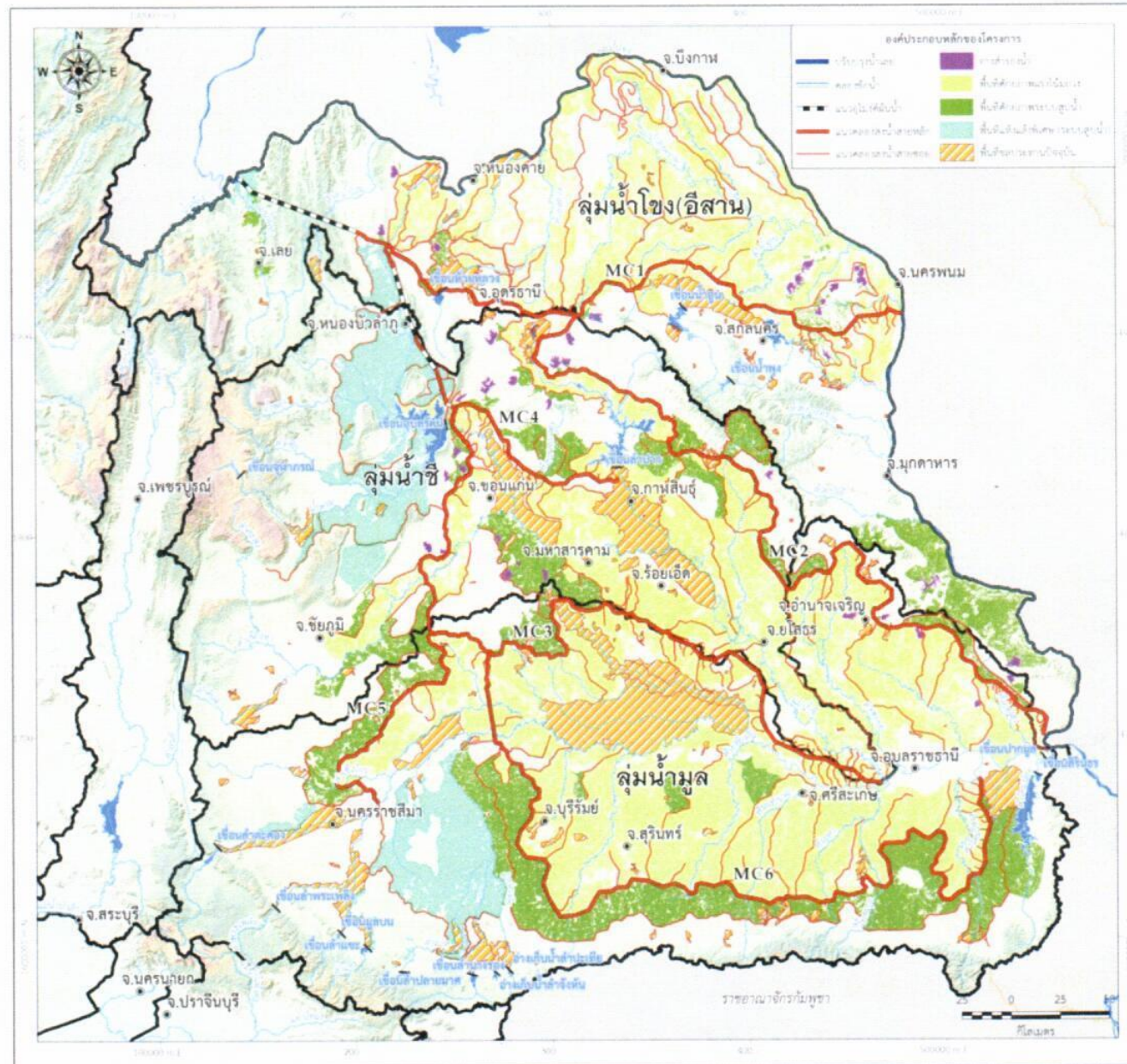
The institutional interplay between subsidence, floods and water infrastructures

Thanawat Bremard

May 2019



Past study: the complexity of the Khong-Loei-Chi-Mun project



พื้นที่ส่งนํ้าชลประทานของการพัฒนาโครงการเต็มศักยภาพ

My research

Main subject: The governance of Bangkok waters

Principal Research Question: What are the institutional mechanisms that allow or restrict the sustainable management of water in Bangkok ?

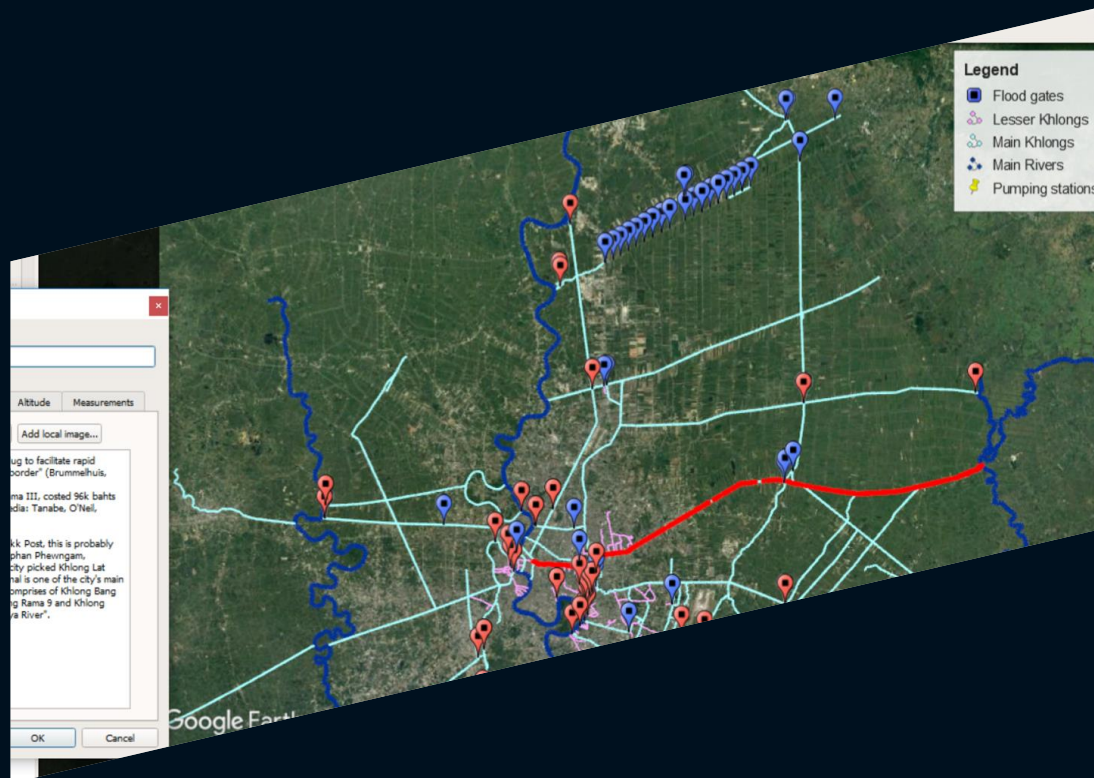
My research

Question:

- How do the actors navigate this institutional landscape?
- What are the unspoken tradeoffs of flood or subsidence risk management?
- How does the visibility of infrastructural solutions act as an imperative in the process decision-making?
- How is the exclusive management of the BMA is put to the test in various efforts regional planning?
- When did it become common sense that flood prevention falls under the State's responsibility?

My research toolbox

Switching lens to view differently



20/12/18: Nation: Tunnel under canal heads Bt13 billion anti-flood works

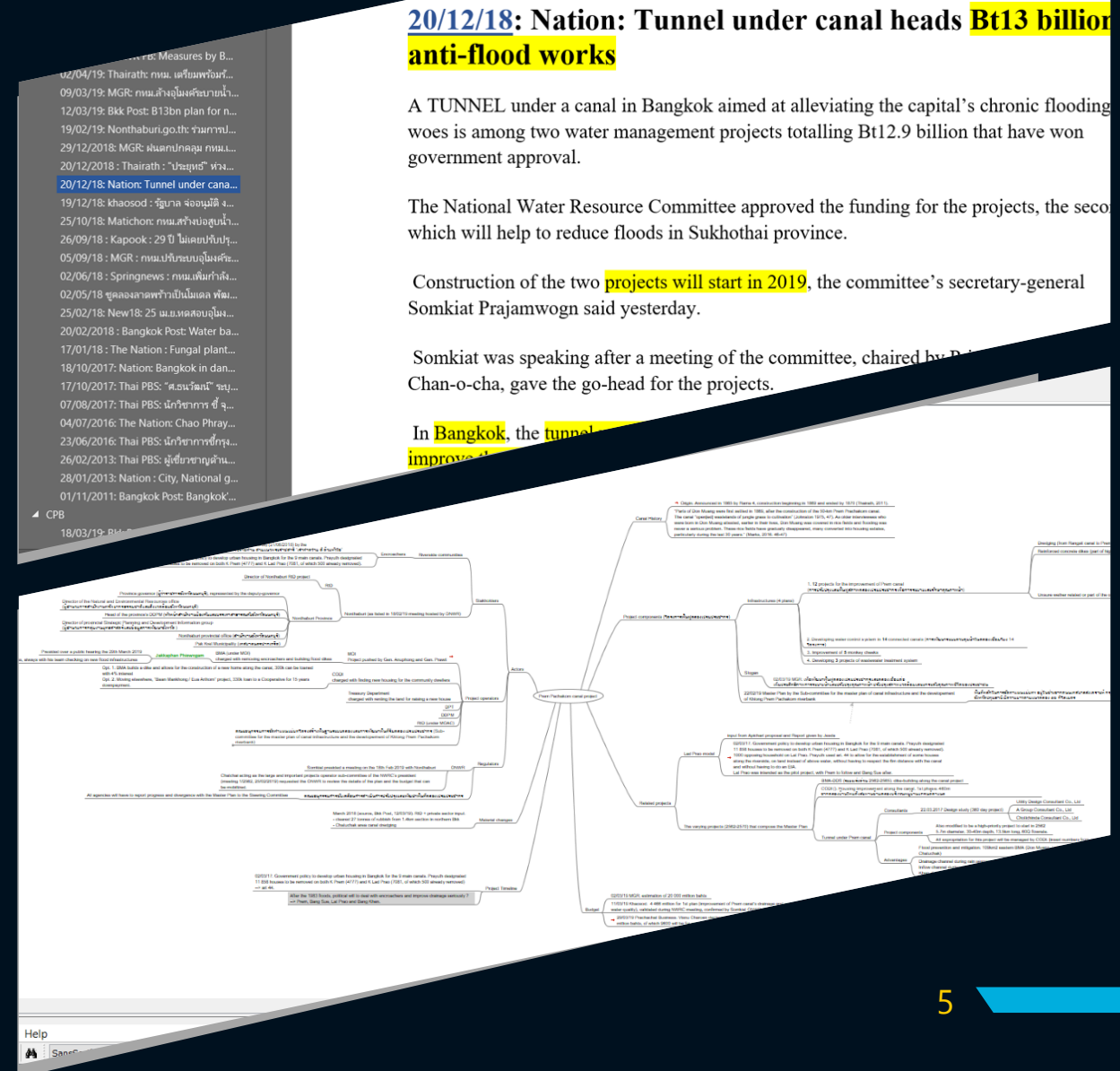
A TUNNEL under a canal in Bangkok aimed at alleviating the capital's chronic flooding woes is among two water management projects totalling Bt12.9 billion that have won government approval.

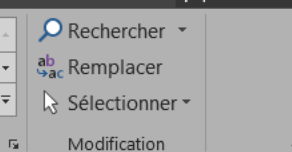
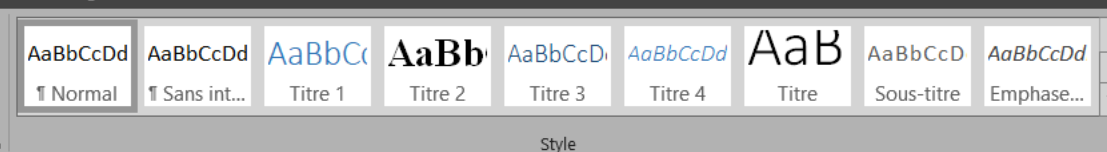
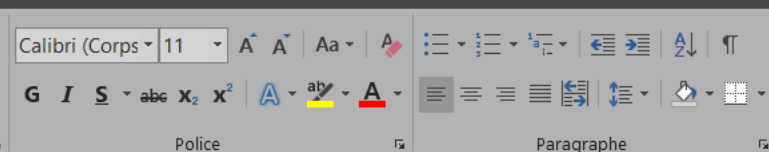
The National Water Resource Committee approved the funding for the projects, the second of which will help to reduce floods in Sukhothai province.

Construction of the two projects will start in 2019, the committee's secretary-general Somkiat Prajamwong said yesterday.

Somkiat was speaking after a meeting of the committee, chaired by Prime Minister Prayut Chan-o-cha, gave the go-head for the projects.

In Bangkok, the tunnel will improve drainage in the city.





Rechercher un document

▲ Bangkok

15/05/19: ONWR FB: Measures by B...
02/04/19: Thairath: ททท. เตรียมพร้อมร้...
09/03/19: MGR: ททท.ล้งจ้งม้งค้ระบายน้...
12/03/19: Bkk Post: B13bn plan for n...
19/02/19: Nonthaburi.go.th: ร่วมการป...
29/12/2018: MGR: ฝนตกปกคลุม ททท.เ...
20/12/2018 : Thairath : "ประยุทธ์" ห่วง...
20/12/18: Nation: Tunnel under cana...
19/12/18: khaosod : รัฐบาล จ่ออนุมัติ จ...
25/10/18: Matichon: ททท.สร้างบ่อสูบน้ำ...
26/09/18 : Kapook : 29 ปี ไม่เคยปรับปรุ...
05/09/18 : MGR : ททท.ปรับระบบอุโมงค์ระ...
02/06/18 : Springnews : ททท.เพิ่มกำลัง...
02/05/18 ชูลดผลกระทบน้ำเป็นโมเดล พัฒ...
25/02/18: New18: 25 เม.ย.ทดสอบอุโมง...
20/02/2018 : Bangkok Post: Water ba...
17/01/18 : The Nation : Fungal plant...
18/10/2017: Nation: Bangkok in dan...
17/10/2017: Thai PBS: "ศ.ธนวัฒน์" ระบุ...
07/08/2017: Thai PBS: นักวิชาการ ชี้ จ...
04/07/2016: The Nation: Chao Phray...
23/06/2016: Thai PBS: นักวิชาการชี้กรุง...
26/02/2013: Thai PBS: ผู้เชี่ยวชาญด้าน...
28/01/2013: Nation : City, National g...
01/11/2011: Bangkok Post: Bangkok'

▲ CPB

18/03/19: Bkk Post: B417bn bill for w...

In Sukhothai, improvement works on the Yom-Nan Canal will cost Bt2.87 billion. This project will reduce flooding and also retain water for agriculture in the province.

Ethnography of infrastructure

"Infrastructure does not grow *de novo*, as Star argues (1999: 389), but "[i]t wrestles with the inertia of the installed base" and is shaped by considerations of "backward compatibility". In this sense, infrastructure is an archive which stores multiple overlaying, while interacting discourses and practices" (Bichsel, 2016: 367).

- Bichsel, Christine. 2016. "Water and the (Infra-)Structure of Political Rule: A Synthesis" 9 (2): 356-72.
- Star, Susan Leigh. 1999. "The Ethnography of Infrastructure." American Behavioral Scientist 43 (3): 377-91.

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CPRP Mind Map.mm* Prem Pachakorn canal project.mm Lower CPB improvement (9 projects).mm Lower CPB flood mitigation improvement.mm Land subsidence.mm Thai Water Law.mm

Stakeholders

6388 households in 38 communities according to a survey (2/10/2016) by the...

Director of Nonthaburi RD project

Province governor (represented by the deputy-governor)

Director of the Natural and Environmental Resource office

Head of the province's GMP (Government Management Project)

Director of provincial Strategic Planning and Development Information group

Nonthaburi Provincial office

Pak Kret Municipality

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Actors

MOR

Project pushed by Gen. Anupong and Gen. Phant

COO charged with finding new housing for the community dwellers

Treasury Department charged with renting the land for making a new house

DPT

DOPM

RD (under MGAC)

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Regulation

Sub-committee for the master plan of canal infrastructure and the development of Klong Prem Pachakorn (roadbank)

Chaitrak acting as the large and important projects operator sub-committee of the NWC's president (meeting 1/2562, 25/12/2019) requested the DNRW to review the details of the plan and the budget that can be modified.

Subcommittee for the master plan of canal infrastructure and the development of Klong Prem Pachakorn (roadbank)

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Material changes

March 2018 (source: BKK Post, 12/3/18): RD + private sector input

cleared 27 tonnes of rubbish from 1.4km section in northern BKK

Chaitrak area canal design

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Project Timeline

02/03/17: Government policy to develop urban housing in Bangkok for the 9 main canals. Prayuth designated 11 858 houses to be removed on both K Prem (4777) and K Lat Phao (7081, of which 500 already removed) -> art 44.

After the 1963 floods, profile will be dealt with excavators and improve drainage seriously? -> Prem, Bang Sue, Lat Phao and Bang Sue.

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Canal History

Origin: Announced in 1963 by Rama 9, construction beginning in 1969 and ended by 1970 (Thairath, 2011).

Thais of Don Muang were first settled in 1960, after the construction of the 50-km Prem Pachakorn canal. The canal "opened" wastelands of jungle grass to cultivation (Jubinton 1975: 47). As close neighbours who were born in Don Muang allowed, earlier in their lives, Don Muang was covered in rice fields and flooding was never a serious problem. These rice fields have gradually disappeared, many converted into housing estates, particularly during the last 30 years." (Marks, 2016: 46-47)

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Project components (โครงการปรับปรุงระบบระบายน้ำ)

1. 12 projects for the improvement of Prem canal (การปรับปรุงระบบระบายน้ำของคลองประปาเป็นโครงการ 12 โครงการ)

2. Developing water control system in 14 connected canals (การพัฒนาควบคุมน้ำในคลองที่เชื่อมถึงกัน 14 โครงการ)

3. Improvement of 5 secondary channels (การปรับปรุง 5 คลองสาขา)

4. Developing 3 projects of wastewater treatment system (การพัฒนาโครงการ 3 โครงการของระบบบำบัดน้ำเสีย)

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Related projects

Input from Apathai proposal and Report given by Jeeva

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Lat Phao was intended as the pilot project, with Prem to follow and Bang Sue after.

BMA-GDPS (กรมการระบายน้ำ กรุงเทพมหานคร - กรมการระบายน้ำ กรุงเทพมหานคร) -> building along the canal project

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The varying projects (2562-2570) that compose the Master Plan

Consultants

22.03.2017 Design study (360 day project)

Utility Design Consultant Co., Ltd

A Group Consultant Co., Ltd

Chaitrak Consultant Co., Ltd

Project components

Also modified to be a high-priority project to start in 2562

5.7m diameter, 30-40m depth, 13 km long, 652 km2 floodable

AI representation for this project will be managed by COO (insert numbers from notebook)

Flood prevention and mitigation, 100km2 western BMA (Don Muang, Lat Si, Sai Mai, Bang Khen and Chaitrak)

Advantage

Drainage channel during rain season

With channel during dry season to allow waste water by pumping water from CPY to Klong Prem, K Bang Khen, K Wat Lat Si, K Bang Sue.

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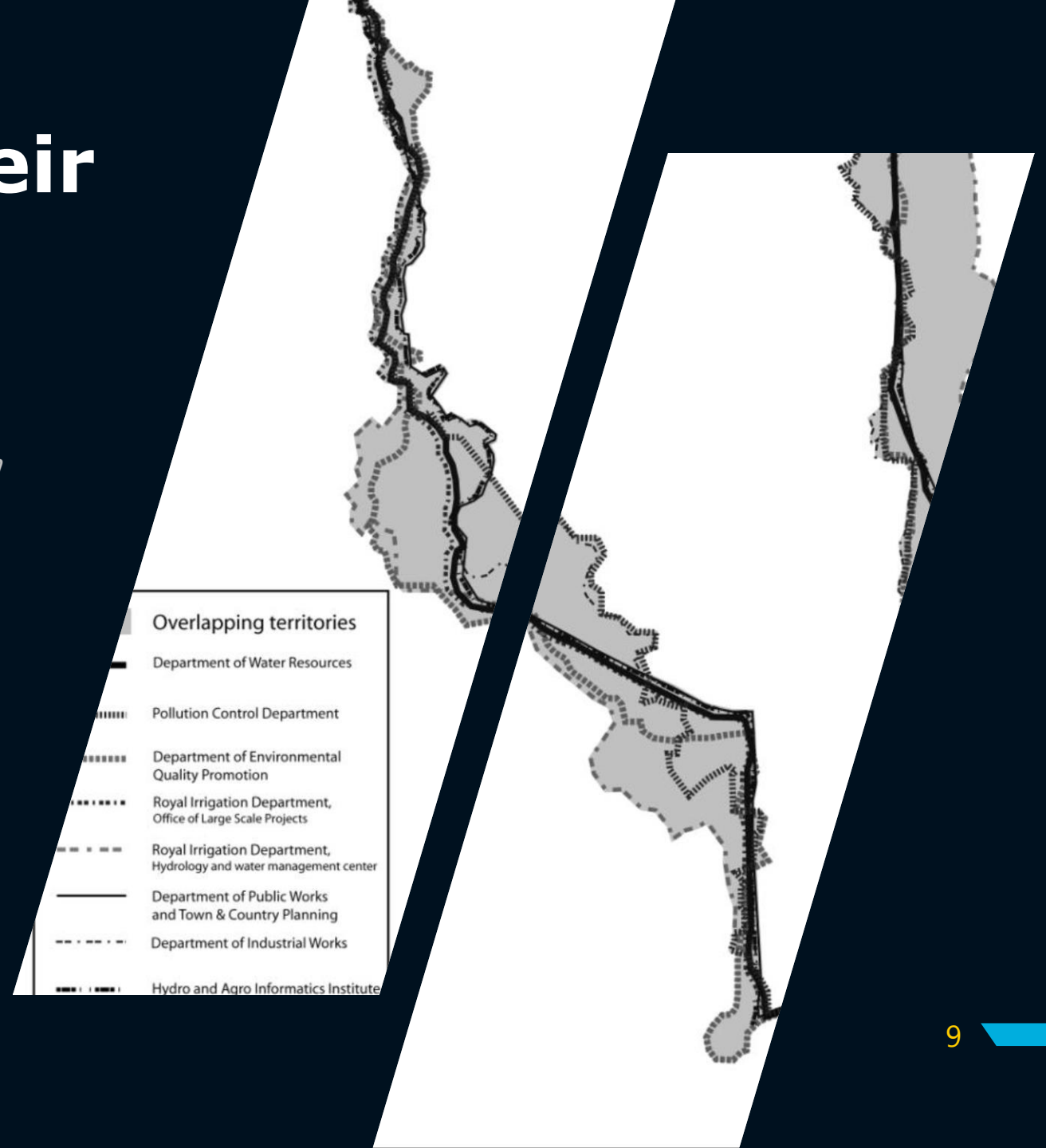
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http://www.thansettakij.com/content/132939

GIS: people and their space from above

- Haffner, Jeanne. 2013. "The Politics of Spatial Form: Aerial Photography in Social-Scientific Research, Architecture, and Urban Planning in the 1920s and the 1930s." In *The View from Above: The Science of Social Space*, by Jeanne Haffner. Cambridge, Mass: MIT Press.
- Jhearmaneechotechai, Prin. n.d. "The Study of the Tha Chin Basin Boundaries and Overlapping Territories from the Government Sectors' Maps."



ex: 1600 Pennsylvania Ave, 20500

Get Directions History

- Major rivers
- Polders
- BKK Klong
 - BKK channels (François' ...
 - ☒ K Hok Wa
 - ☒ Klong Bang Lamphu (G Ma
 - คลองสะพานเหล็กเดิม แอ๊วดี
 - แน่นชนิด
 - ☒ K Bua Kro - บัวกระ
 - ☒ Klong Phadung Krung Ka...

BMR hydrosocialscape

Legend

- Flood gates
- Lesser Khlongs
- Main Khlongs
- Main Rivers
- Pumping stations

Google Earth - Edit Path

Name: Klong Saen Saeb

Description Style, Color View Altitude Measurements

Add link... Add web image... Add local image...

[To the east Khlong Saen Saeb was dug to facilitate rapid transport of troops to the Cambodia border" (Brummelhuis, 2007: 22).

Construction began in 1837 under Rama III, costed 96k bahts and took 3 years to complete (Wikipedia: Tanabe, O'Neil, Ouyyanont).

07/04/19 about the Lat Prao model, Bkk Post, this is probably the canal meant by Rama 9: "Chakkaphan Phevwngam, Bangkok deputy governor, said the city picked Khlong Lat Phrao for the project because this canal is one of the city's main flood drainage routes -- which also comprises of Khlong Bang Sue, Khlong Prem Prachakorn, Khlong Rama 9 and Khlong Phra Khanong -- into the Chao Phraya River".

OK

Cancel

Google Earth

Image © 2019 TerraMetrics

Image Landsat/Copernicus

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

30 mi

UPE: entangled circulations and trade-offs

« I have tried to stress that **political ecology is not a method or a theory**, nor even a single perspective. Rather, I suggest, political ecology is an urgent **kind of argument or text** [...] that examines winners and losers, is narrated using dialectics, begins and/or ends in a contradiction, and surveys both the status of nature and stories about the status of nature » (Robbins, 2012: viii).

- Robbins, Paul. 2012. *Political Ecology: A Critical Introduction*. 2nd ed. Critical Introductions to Geography. Chichester, West Sussex ; Malden, MA: J. Wiley & Sons.

UPE: entangled circulations and trade-offs

« Such a framework is an important step towards beginning to disentangle the interwoven knots of **social process**, **material metabolism**, and **spatial form** that go into the formation of contemporary **urban socionatural landscapes** »
(Swyngedouw and Heynen 2003)

- Swyngedouw, Erik, and Nikolas C Heynen. 2003. "Urban Political Ecology, Justice and the Politics of Scale." *Antipode* 35 (5): 898–918. <https://doi.org/10.1111/j.1467-8330.2003.00364.x>, in Heynen, Nik, Maria Kaika, and Erik Swyngedouw. 2006. *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*.

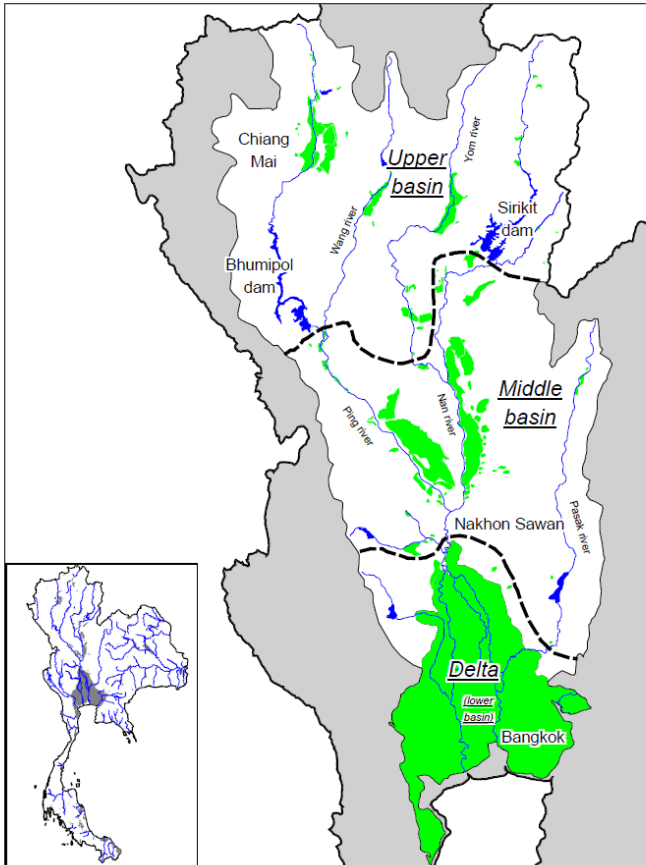
Institutional analysis

“A critical missing piece in this puzzle of adaptive organisations and institutions lies in **how institutions actually perform**; not in an idealized version of institutions that is based solely on policies and strategies, organograms, and terms of reference but in how actors within and between institutional structures and processes operate. **This requires politically nuanced and actor-oriented perspectives**” (Friend et al., 2018: 5).

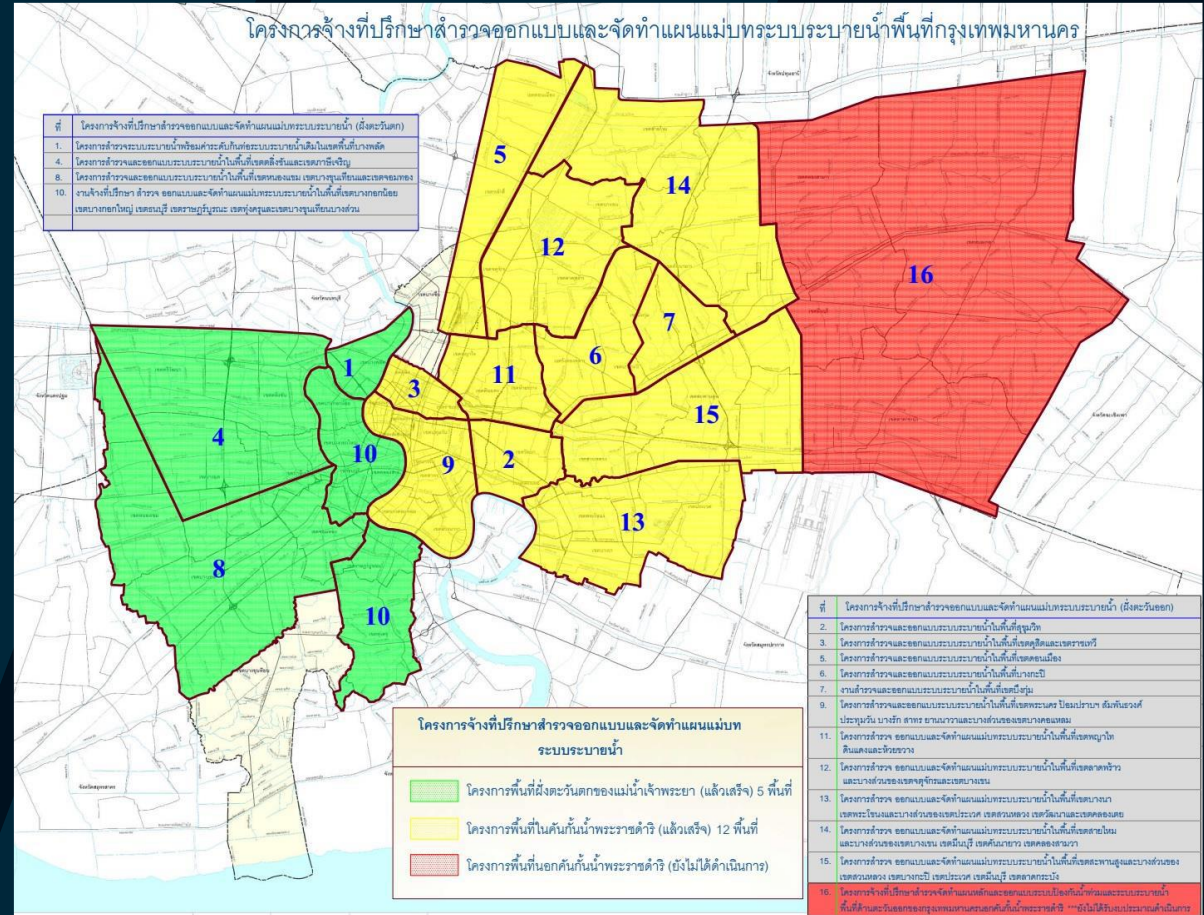
- Friend, Richard, and Pakamas Thinphanga. 2018. “Urban Water Crises under Future Uncertainties: The Case of Institutional and Infrastructure Complexity in Khon Kaen, Thailand.” *Sustainability* 10 (11): 3921. <https://doi.org/10.3390/su10113921>.
- Nader, Laura. 1972. “Up the Anthropologist: Perspectives Gained from Studying Up.” In *Reinventing Anthropology*, edited by Dell Hymes. New York: Pantheon Books.

Contextualising Bangkok's hydrosocialscape

FIGURE 1: LAYOUT OF THE CHAO PHRAYA BASIN AND ITS THREE SUB-DIVISIONS



- Molle, François, Chatchom Chompadist, Thippawal Srijantr, and Jesda Keawkulaya. 2001. "Dry-Season Water Allocation and Management in the Chao Phraya Delta." 8. DORAS - DELTA. DORAS Center.



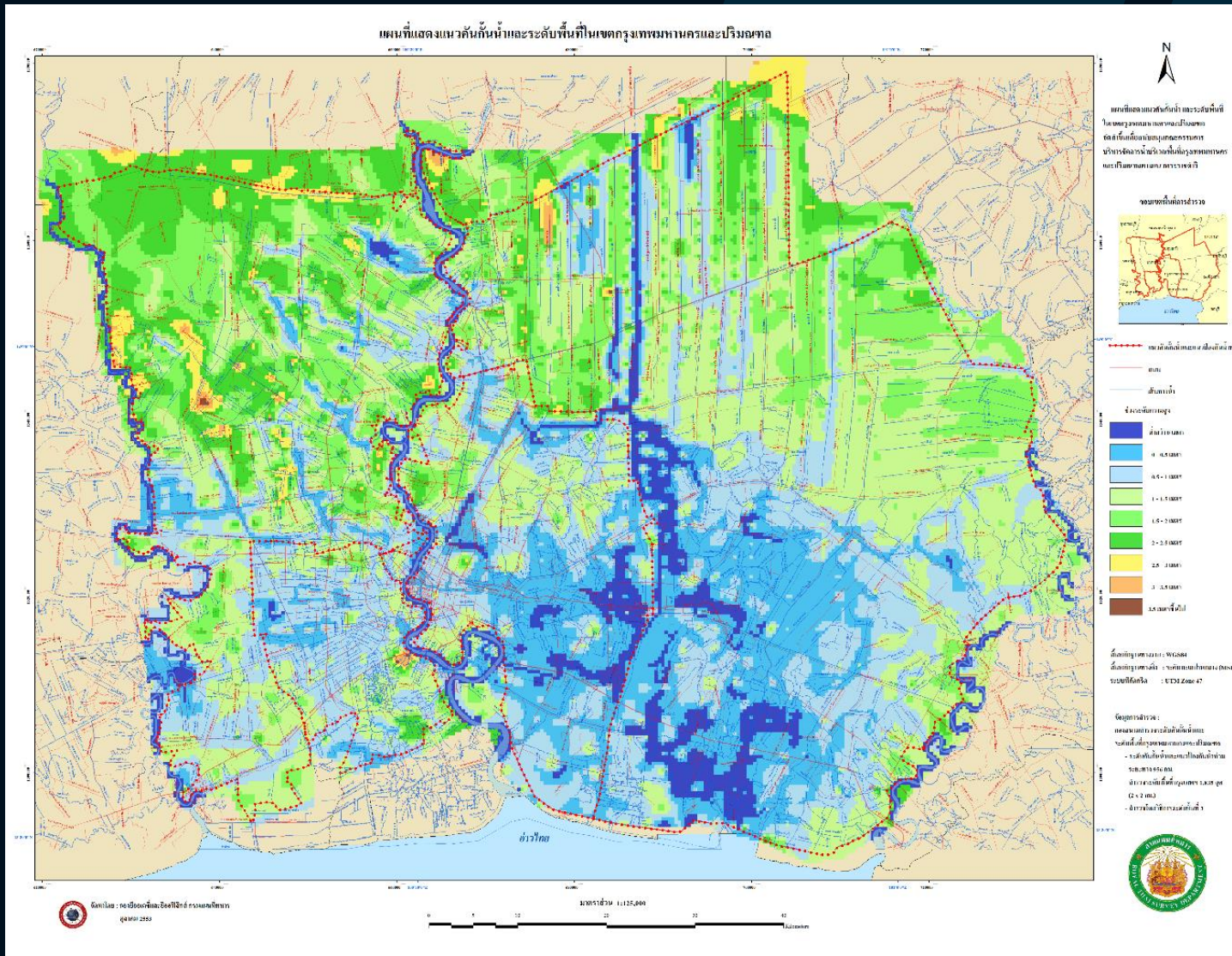
- Department of Drainage and Sewerage (BMA), n.d., Study report for drainage system by area

BMA drainage:

- Source: DDS (BMA), 2018, Yearly Operation Report

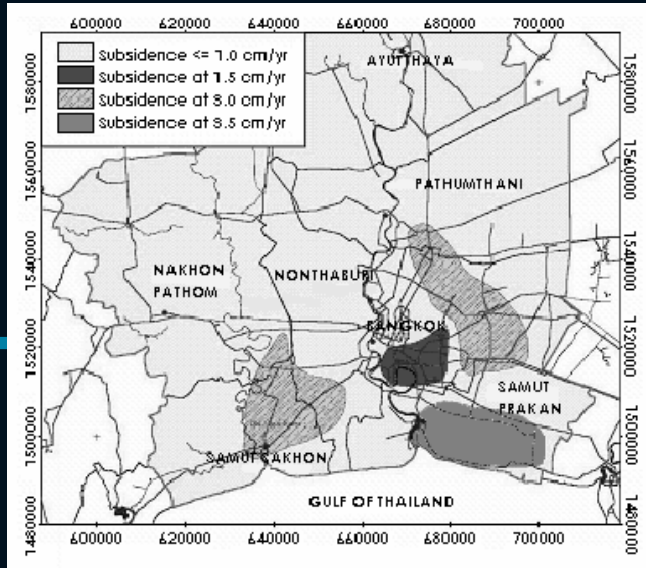
	Main roads	Lesser roads	Total
Canals			1,682 (= 2,604 km)
Drainage pipes	1,950 km	4,418 km	6,368 km
Pumping stations			189
Flood gates			240
Sump pumps			269

Contextualising Bangkok's hydrosocialscape

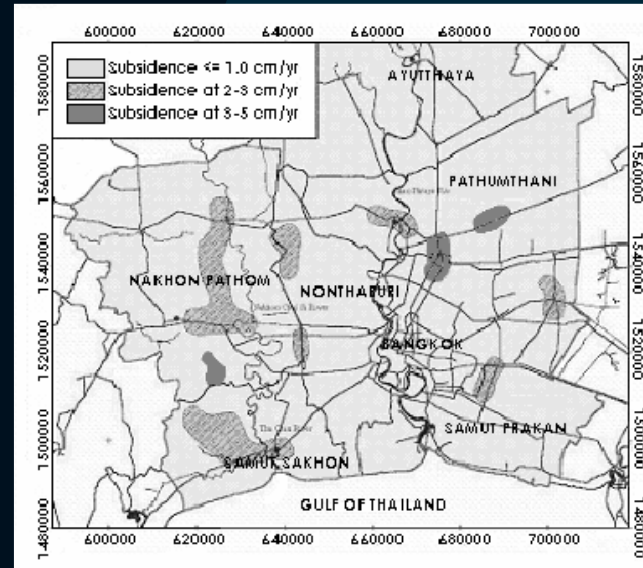


- Royal Thai Survey Department, 2010, Bangkok land elevation map

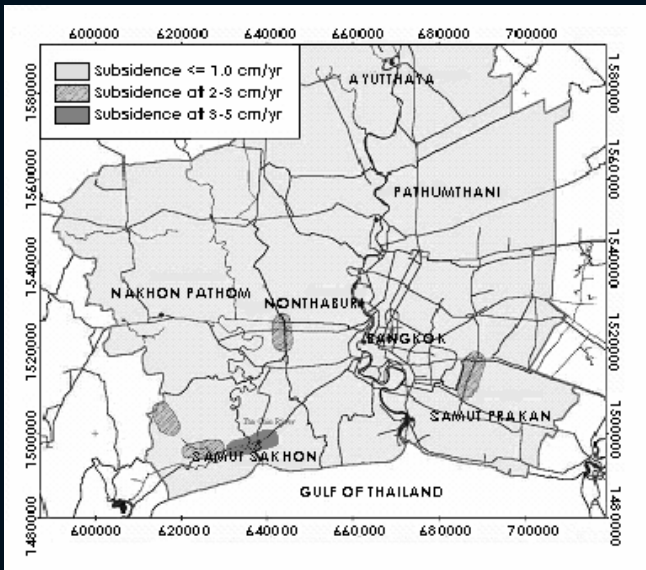
1997



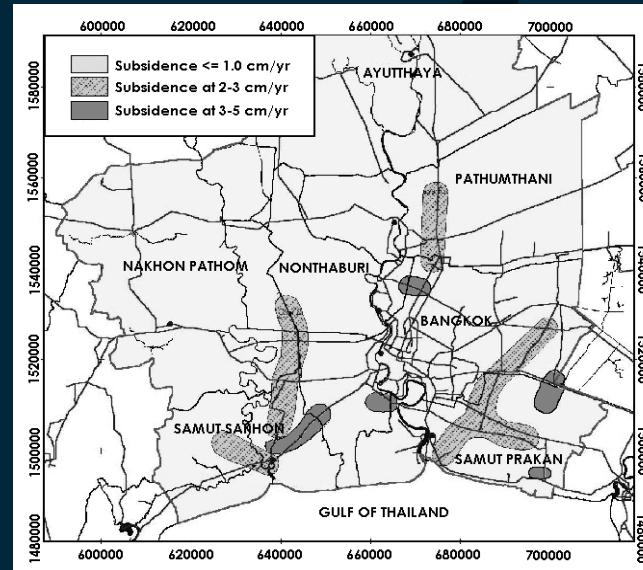
2001



2002



2003

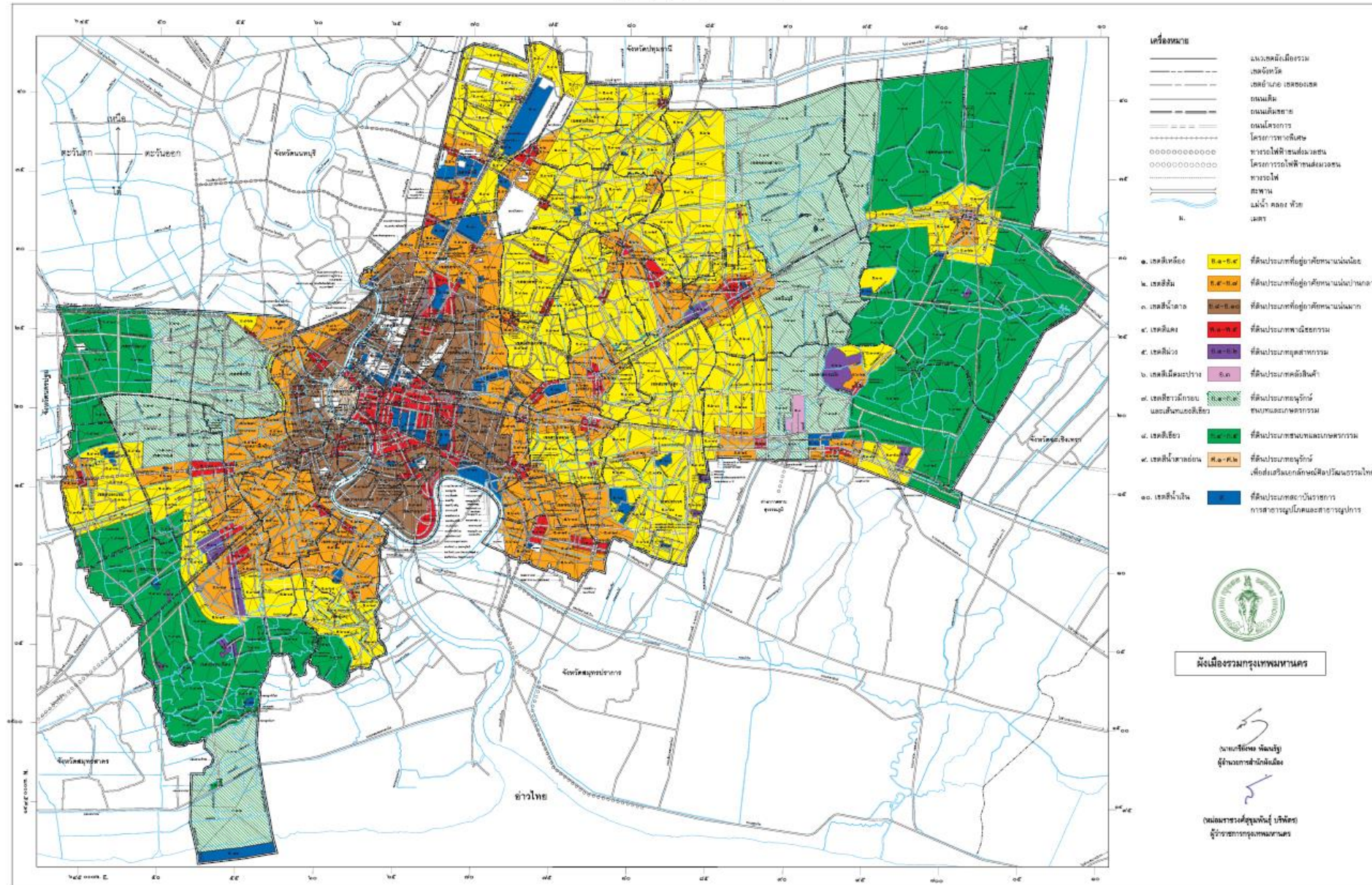


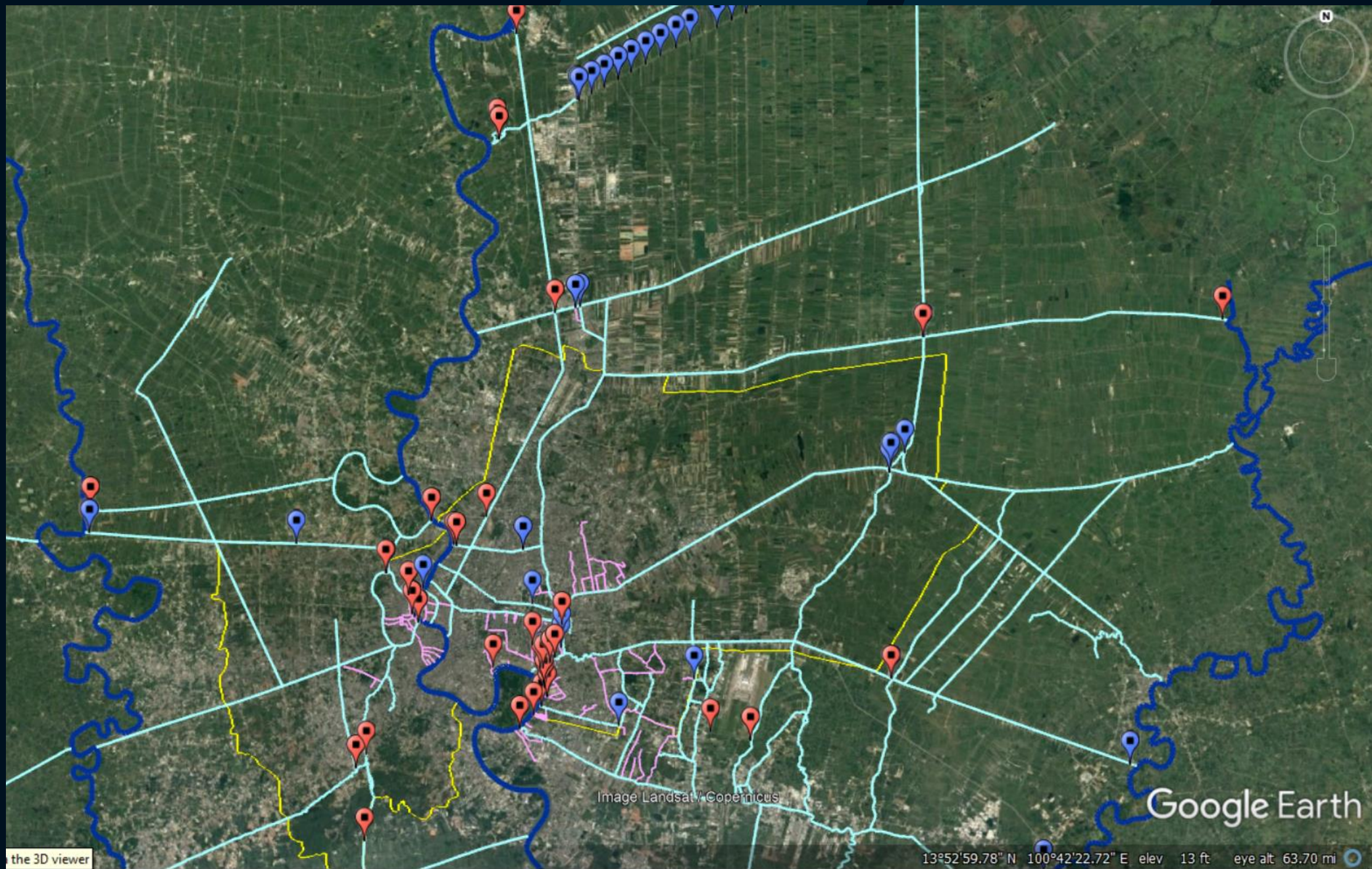
- Babel, Mukand S., Ashim Das Gupta, Niña Donna Sto. Domingo. 2006. "Land Subsidence: A Consequence of Groundwater Over-Exploitation in Bangkok, Thailand." *International Review for Environmental Strategies* 6 (2): 307–28. 17

แผนผังกำหนดการใช้ประโยชน์ที่ดินตามที่ได้จำแนกประเภทท้ายกฎกระทรวง
ให้ใช้บังคับผังเมืองรวมกรุงเทพมหานคร

พ.ศ. ๒๕๕๖

มาตรา ๖ ๑ แห่ง พ.ร.บ.
ฉบับที่ ๒๕๕๖







Thank you for your attention

Thanawat
Bremard

PhD Student at ABIES, AgroParisTech

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Territories » (UMR G-EAU)
French National Institute for Research for Sustainable
Development (IRD)

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